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REMARKS

Claims 2-4, 7-16, 28-30 and 32 stand rejected. Claims 2-4, 7-16, 28-30 and 32 are pending. Applicants respectfully request reconsideration in view of the foregoing amendments and following remarks.

Claims 7, 3, 4, 8 and 32 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Kenji (JP Patent No. 5690568) in view of Rostoker (U.S. Patent No. 5,811,320) and further in view of Kelly (U.S. Patent No. 5,021,864).

Independent claim 7 recites, *inter alia*, “said semiconductor chip having an array of photosensitive elements for receiving an image and for generating corresponding signals, said frame, support structure, and semiconductor chip encapsulated in a transparent material, said transparent material having an optical light transmitting device covering said photosensitive elements of said semiconductor chip.”

Kenji relates to a photoelectric transducer device having a molded lens and a mask area to restrict incoming light. Rostoker relates to methods of etching optical elements in association with photosensitive elements. (Abstract). Kelly describes an IC paddle having a number of coplanar floating sub-paddles that are coupled to a support beam via flexible coils. (Abstract)

The subject matter of claim 7 would not have been obvious over Kenji in view of Rostoker. Neither Kenji nor Rostoker disclose a “frame, support structure, and semiconductor chip encapsulated in a transparent material,” as recited in independent claim 7. Kenji teaches a single photoelectric transducer having a molded lens and a mask area to restrict incoming light, while Rostoker discloses methods of etching optical elements that may have, as disclosed in Figure 8, a single lenslet over three photosensitive elements, where the single lenslet is diffractive. The two references address entirely different problems using entirely different structures. Neither reference teaches or suggests an array of photosensitive elements including a frame, support structure and semiconductor chip encapsulated in a transparent material, as recited in claim 7.

Kelly fails to overcome the deficiencies of Kenji or Rostoker and does not teach or suggest the present invention. Kelly relates to an IC, not an imaging device and therefore does not teach or suggest an array of photosensitive elements. Kelly is directed toward solving the problem of stress generated between an IC die and a paddle, which Kelly solves by employing a number of coplanar sub-paddles coupled to a support beam via flexible coils. The disclosure of Kelly teaches away from the present invention because Kelly divides and encapsulates a number of discrete paddles, not an array of photosensitive elements, as disclosed by the Application.

Kenji, Rostoker, and Kelly, whether considered alone or in combination, fail to teach or suggest an imaging device having a “frame, support structure, and semiconductor chip encapsulated in a transparent material, said transparent material having an optical light transmitting device covering said photosensitive elements of said semiconductor chip,” as recited in claim 7. Since Kelly relates to IC devices and Kenji or Rostoker relate to imaging devices, there is no motivation to combine the teachings of Kelly with Kenji or Rostoker to arrive at the present invention.

Accordingly, Applicants respectfully request the rejection of claim 7 be withdrawn. Claims 3, 4, 8 and 32 depend from independent claim 7 and include additional limitations. For at least the reasons discussed in relation to claim 7, claims 3, 4, 8 and 32 should also be allowable.

Claims 9 and 10 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Kenji, Rostoker, Kelly and further in view of Park (U.S. Patent No. 5,053,298).

Claims 9 and 10 depend from claim 7. For at least the reasons stated above in relation to claim 7, claims 9 and 10 should be allowable. As discussed above with respect to independent claim 7, Kenji, Rostoker, or Kelly do not teach or suggest all of the limitations of independent claim 7. In addition, dependent claims 9 and 10 are allowable on their own merits, because not only do the cited references fail to teach the limitations of independent claim 7, but even if taken in combination with Park, fail to meet the

limitations of dependent claims 9 and 10. Park teaches forming a planarizing layer, a color filter pattern, a coloring layer and a protective layer. (Abstract and Fig. 2). Park teaches formation of layers over photosensitive elements, not *encapsulating* an array of photosensitive elements, frame, support structure, and semiconductor chip in a transparent material, as described in the Application. There is no motivation to apply the teachings of Park to Kenji or Rostoker, discussed above. Further, the cited references, taken alone or in combination with Park, do not teach or suggest, *inter alia*, “wherein said optical light transmitting device is a color filter, said filter being formed of said transparent material” or “a color filter array molded into said transparent material,” as recited in claims 9 and 10, respectively.

Claim 2 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Kenji, Rostoker, Kelly and further in view of Anderton (U.S. Patent No. 5,596,228).

Claim 2 depends from claim 7. For at least the reasons stated above in relation to claim 7, claim 2 should be allowable. As discussed above with respect to independent claim 7, Kenji, Rostoker, or Kelly do not teach or suggest all of the limitations of independent claim 7. In addition, dependent claim 2 is allowable on its own merits, because not only do the cited references fail to teach the limitations of independent claim 7, but even if taken in combination with Anderton, fail to meet the limitations of dependent claim 2. Anderton refers to an apparatus for cooling charge coupled devices (CCD). Anderton discusses the use of charge-coupled device arrays. Kelly relates to an IC device, not an array of photosensitive elements. The cited references, taken alone or in combination with Anderton, do not teach or suggest “wherein said photosensitive elements are arranged in a two-dimensional array,” as recited in claim 2.

Claims 11-13, 15 and 16 are 35 U.S.C. 103(a) as being unpatentable over Rostoker, in view of Kenji and further in view of Kelly.

Independent claim 11 recites *inter alia*, an imaging system having “first, second and third semiconductor devices on respective frames, each of said frames having a support

structure,” and “each of said frame, support structure, and respective semiconductor device is encapsulated in respective first, second and third packages,” wherein the packages are formed of transparent material.

Kenji relates to a photoelectric transducer device having a molded lens and a mask area to restrict incoming light. Rostoker relates to methods of etching optical elements in association with photosensitive elements. (Abstract). Kelly describes an IC paddle having a number of coplanar floating sub-paddles that are coupled to a support beam via flexible coils. (Abstract)

Kenji and Rostoker, whether considered alone or in combination, fail to teach or suggest a “frame, support structure, and respective semiconductor device is encapsulated in respective first, second and third packages,” wherein the packages are formed of transparent material, as recited in claim 11. As discussed above, Kenji teaches a single photoelectric transducer having a molded lens and a mask area to restrict incoming light, while Rostoker discloses methods of etching optical elements that may have, as disclosed in Figure 8, a single lenslet over three photosensitive elements, where the single lenslet is diffractive. The disclosure of Kelly divides and encapsulates a number of discrete paddles in a single package, not “each of said frame, support structure, and respective semiconductor device is encapsulated in respective first, second and third packages,” as recited in claim 11.

For at least these reasons, claim 11 is allowable over Kenji in view of Rostoker. Moreover, Kelly fails to overcome the deficiencies of Kenji or Rostoker and does not teach or suggest the present invention. Kenji, Rostoker, and Kelly, whether considered alone or in combination, fail to teach or suggest an imaging device having a “first, second and third semiconductor devices on respective frames, each of said frames having a support structure,” as recited in claim 11. As discussed above, since Kelly relates to IC devices where several paddles are encapsulated in one package, Kenji relates to a photoelectric transducer device and Rostoker relates to a single lenslet over three photosensitive elements, it would not have been obvious to combine the teachings of these disparate

references to arrive at the present invention, encapsulating respective a frame, support structure and respective semiconductor devices into respective packages.

Claims 12, 13, 15, and 16 depend from claim 11, and are allowable for at least the same reasons set forth above with respect to claim 11, and on their own merit. Specifically, Kenji, Rostoker, or Kelly, whether considered alone or in combination, fail to teach or suggest the inventive combination defined by claims 12, 13, 15, and 16.

Claim 28 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Kataoka (U.S. Patent No. 5,597,422) in view of Rostoker.

Claim 28 recites, *inter alia*, an imaging device comprising a “housing having a cavity and a bottom surface,” “a semiconductor chip located within [the] cavity of [the] housing,” and the “semiconductor chip being encapsulated in a transparent material, wherein said transparent material has an uppermost surface substantially planar to an uppermost surface of said housing.”

Katoaka relates to a solar cell module having a photoelectric transducer. The subject matter of claim 28 would not have been obvious over Katoaka in view of Rostoker. Neither Katoaka nor Rostoker disclose a “semiconductor chip being encapsulated in a transparent material,” as recited in independent claim 28. Katoaka and Rostoker, whether considered alone or in combination, fail to teach or suggest an imaging device having a “semiconductor chip being encapsulated in a transparent material,” as recited in claim 28. Katoaka suggests that encapsulation of a solar module with an organic resin is detrimental to the operation of a solar cell (background, col. 2, lines 10-20). Therefore, Katoaka teaches away from a “semiconductor chip being *encapsulated* in a transparent material.” (emphasis added) Moreover, since Katoaka relates to a solar cell module and Rostoker relates to photosensitive elements, there is no motivation to combine these references, which are directed toward wholly unrelated technologies.

It would not have been obvious to combine these disparate references to arrive at the present invention. Accordingly, Applicants respectfully request the rejection of claim 28 be withdrawn.

Claim 29 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Rostoker, Kenji, Kelly and in view of Park.

Claim 29 depends from independent claim 28 and recites, *inter alia*, “wherein said transparent cover includes a color filter.” For at least the reasons stated above in relation to claim 28, claim 29 should be allowable. As discussed above with respect to independent claim 28, Rostoker does not teach or suggest all of the limitations of independent claim 28. In addition, dependent claim 29 is allowable on its own merits, because not only do the cited references fail to teach the limitations of independent claim 28, but even if taken in combination with Park, fail to meet the limitations of dependent claim 29. Park teaches forming a planarizing layer, a color filter pattern, a coloring layer and a protective layer. (Abstract and Fig. 2). Park teaches formation of layers over photosensitive elements, not *encapsulating* a semiconductor chip in a transparent material, as described in the Application. There is no motivation to apply the teachings of Park to Kenji or Rostoker. Further, the cited references, taken alone or in combination with Park, do not teach or suggest, *inter alia*, “wherein said transparent cover includes a color filter.”

It is unclear to the Applicants what rejection applies to claim 31, as it is not explicitly written in the Office Action. Applicants assume that claim 31 is rejected under 35 U.S.C. §103(a) as being unpatentable over Kenji, Kataoka and Shibata. Applicants will respond according to this assumption.

Claim 31 depends from claim 28. For at least the reasons stated above in relation to claim 28, claim 31 should be allowable. As discussed above with respect to independent claim 28, Kataoka does not teach or suggest all of the limitations of independent claim 28. In addition, dependent claim 31 is allowable on its own merits, because not only do the cited references fail to teach the limitations of independent claim

28, but even if taken in combination with Kenji or Shibata, fail to meet the limitations of dependent claim 31. Shibata refers to a method of forming a light sensitive chip coated with a polyimide resin which has organic color pigments within it in order to improve heat resistance and moisture resistance. Kenji relates to a photoelectric transducer device having a molded lens and a mask area to restrict incoming light. Katoaka relates to a solar cell module having a photoelectric transducer and, as discussed above, teaches away from a “semiconductor chip being *encapsulated* in a transparent material,” as recited in independent claim 28. Kataoka, taken alone or in combination with Kenji or Shibata, does not teach or suggest “wherein said housing is formed of molded plastic,” as recited in claim 31. There is also no motivation to combine the cited references, which relate to different problems in different technologies.

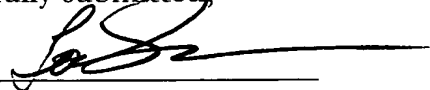
Claim 14 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Rostoker, Kenji, Kelly and in view of Park.

Claim 14 ultimately depends from claim 11. Claim 14 recites, *inter alia*, “wherein said complementary color filters are molded into said first, second and third packages.” As discussed above with respect to claim 11, Kenji and Rostoker, whether considered alone or in combination, fail to teach or suggest a “frame, support structure, and a respective semiconductor device is encapsulated in respective first, second and third packages,” wherein the packages are formed of transparent material, as recited by claim 11. Similarly, the combination of Rostoker, Kenji, Kelly and Park also fails to teach or suggest all of the limitations of claim 11. Claim 14 is allowable over Rostoker, Kenji or Kelly in view of Park for at least these reasons. As discussed above, Park teaches formation of layers over photosensitive elements, not *encapsulating* a frame, support structure, and respective semiconductor device in a transparent material, as described in claim 11. There is also no motivation to apply the teachings of Park to Kenji or Rostoker. Further, the cited references, taken alone or in combination with Park, do not teach or suggest, *inter alia*, “wherein said transparent cover includes a color filter.”

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

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Respectfully submitted,

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